

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 June 2005 (02.06.2005)

PCT

(10) International Publication Number
WO 2005/049614 A2

(51) International Patent Classification⁷: **C07D 475/04**,
487/14, A61K 31/505 // (C07D 487/14, 241:00, 239:00,
235:00)

(74) Agent: **IZRAELEWICZ, Mark, H.**; Marshall, Gerstein
& Borun LLP, 6300 Sears Tower, 233 South Wacker Drive,
Chicago, IL 60606 (US).

(21) International Application Number:
PCT/US2004/038313

(22) International Filing Date:
17 November 2004 (17.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/520,367 17 November 2003 (17.11.2003) US
60/520,368 17 November 2003 (17.11.2003) US

(71) Applicants (for all designated States except US):
BIOMARIN PHARMACEUTICAL INC. [US/US];
105 Digital Drive, Novato, CA 94949 (US). **MERCK**
EPROVA AG [CH/CH]; Im Laternenacker 5, CH-8200
Schaffhausen (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MOSER, Rudolf**
[CH/CH]; Lahnhalde 11, CH-8200 Schaffhausen (CH).
GROEHN, Viola [DE/CH]; Bahnhofstrasse 2, CH-8447
Dachsen (CH). **SCHUMACHER, Andreas** [DE/DE]; Am
Neubrunnen 15, 79588 Efringen-Kirchen (DE). **MARTIN,**
Pierre [CH/CH]; Meisenweg 38, CH-4310 Rheinfelden
(CH).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: PROCESSES FOR PREPARING TETRAHYDROBIOPTERIN, AND ANALOGS OF TETRAHYDROBIOPTERIN

(57) Abstract: Process for the preparation of tetrahydrobiopterin from neopterin and/or 6-substituted pterins with an improved yield and a high stereoselectivity. Also disclosed herein are novel individual intermediates prepared in the preparation of tetrahydrobiopterin, such as selectively protected neopterin useful for the preparation of tetrahydrobiopterin.

BEST AVAILABLE COPY

WO 2005/049614 A2